

**Amendments to the Specification:**

Please replace the three paragraphs beginning at page 11, line 10 through page 12, line 4 with the following rewritten paragraphs:

Turning to the drawings, wherein like numbers denote like parts throughout the several views, Fig. 1 illustrates a distributed agent-based product support system 10 consistent with the invention. In implementing such a distributed system, a vendor, or product support site 12 is interfaced with a plurality of customer sites 14 (for customers 1..N) to provide product support for a plurality of supported products purchased or otherwise acquired by each customer. To support distributed agent-based product support, a support intelligent agent server 16 is resident at the vendor site, while product intelligent agent servers 18 are illustrated as resident on supported products at each customer site. It should appreciate that the vendor, as well as each customer, may have multiple sites interfaced within product support system 10, and that multiple vendors may be interfaced within the product support system as well.

In the illustrated implementation of Fig. 1, the supported product is a computer, e.g., a multi-user computer such as an AS/400 or eServer iSeries midrange computer available from International Business Machines Corporation. Moreover, in this implementation, the supported product additionally hosts the customer site-based product support components for system 10, e.g., the product intelligent agent support servers server 18. As will be discussed in greater detail below, however, a wide variety of other computer-related products may be supported using system 10 without departing from the spirit and scope of the invention.

Page 2 of 26  
Serial No. 10/021,203  
Amendment and Response dated August 3, 2004  
Reply to Office Action of May 3, 2004  
IBM Docket ROC920010146US1  
W11&E IBM/201  
K:\bmt201\Amendment and Response to 5-3-04 OA.wpd

Various manners of interconnecting support intelligent agent server 16 and product intelligent agent servers 18 may be used consistent with the invention. For example, at each site, an internal network 20, 22 such as a local area network, may be coupled to the respective server 16, 18. Other computers, e.g., workstations 24, 26, may also be coupled to networks 20, 22, and provide user access to servers 16, 18. It will be appreciated that multiple client computers, as well as other devices, may be coupled to internal networks 20, 22 consistent with the invention.

Please replace the two paragraphs beginning at page 12, line 19 through page 13, line 14, with the following rewritten paragraphs:

One important aspect of providing product support in the manner described herein, and in particular for the purpose of identifying and diagnosing customer problems, is the incorporation of a cross-customer knowledge base 36 in vendor site 12, which includes problem identification, solution information, operational and environmental data based upon information collected from multiple customers. In addition, in the illustrated implementation each customer site includes local storage 38 for customer data, in particular, operational data associated with various operating characteristics of the supported product. As will be discussed in greater detail below, the operational data may incorporate any performance, configuration, runtime, or other data that characterizes the operation of a supported product, and which is capable of being monitored for the purpose of problem identification or optimization of operation efficiency. In the illustrated implementation, typically such operational data is forwarded to the vendor site and stored in centralized storage, e.g.,

Page 3 of 26  
Serial No. 10/021,203  
Amendment and Response dated August 3, 2004  
Reply to Office Action of May 3, 2004  
IBM Docket ROC920010146US1  
WH&E IBM/201  
K:\bm\201\Amendment and Response to 3-3-04 OA.wpd

as represented at 40. In some implementations, the operational data may be stored directly in cross-customer knowledge base 36, whereby separate storage for the operational data of each customer would not be required.

It will be appreciated that product support intelligent agent server 16, each supported product 18, each workstation 24, 26 and any other interconnected device may be implemented using practically any type of computer, computer system or other programmable electronic device, including a client computer, a server computer, a portable computer, a handheld computer, an embedded controller, etc. Moreover, each such device may be implemented using multiple interconnected computers and/or electronic devices, e.g., in a cluster or other distributed computing environment. A number of the devices illustrated in Fig. 1 each comprise an "apparatus" that also may be referred to hereinafter as a "computer"; however, it should be appreciated the term "apparatus" may also include other suitable programmable electronic devices consistent with the invention.

Please replace the paragraph beginning at page 17, line 14 with the following rewritten paragraph:

In the illustrated implementation, each server 16, 18, functions as a product support program that is utilized in the overall system to provide a portion of the product support functionality described herein. On each server 16, 18 is provided an agent pool 80, 82, respectively. Within support agent pool 80 is typically provided a number of types of agents including shipped product agents 88, downloadable product agents 90,

Page 4 of 26  
Serial No. 10/021,203  
Amendment and Response dated August 3, 2004  
Reply to Office Action of May 3, 2004  
IBM Docket ROC920010146US1  
WH&E IBM/201  
K:\ibm\201\Amendment and Response to 3-3-04 OA.wpd

support only agents 92, knowledge base agents 94 and third party agents 96.

Please replace the paragraph beginning at page 18, line 12 with the following rewritten paragraph:

Product agent pool 82 includes a plurality of agents, such as shipped product agents 100, downloaded product agents 102 and third party agents 104. Of the shipped product agents, these agents are typically duplicates of the corresponding shipped product agents 88 found in support agent pool 80, while downloaded product agents 102 are typically copies of the downloadable product agents 90 from support agent pool 80 that have been downloaded to a particular customer's product intelligent agent server 18. Third party agents 104 may be identical to those in support agent pool 80, or in the alternative, may represent particular types of third party agents that are suitable for execution on a customer's system, rather than on a support system, should a particular vendor provide agents suited for execution on such systems.

Please replace the paragraph beginning at page 28, line 24 with the following rewritten paragraph:

In this exemplary implementation, the product support system relies on three agents (or optionally, modules within a single agent), including an adaptor agent 304 that monitors workload and performance and sets configuration parameters on the Lotus Notes server, a neural

Page 5 of 26  
Serial No. 10/021,203  
Amendment and Response dated August 3, 2004  
Reply to Office Action of May 3, 2004  
IBM Docket ROC920010146US1  
WH&E IBM/201  
K:\ibm\201\Amendment and Response to 5-3-04 OA.wpd

CS

system model agent 308 that attempts to learn so as to mimic the performance response characteristics of the ~~Lotus Notes~~ groupware server 302 over a range of workloads and control settings, and another neural controller agent 306 that is adapted on-line to determine the appropriate control settings for optimal application performance.

---

Please replace the paragraph beginning at page 29, line 5 with the following rewritten paragraph:

Ch

During runtime, the ~~Lotus Notes Server~~ groupware server 302 is subjected to a varying workload while the adaptor agent 304 monitors the resulting server performance values. In addition, the neural controller agent 306 is adapted on-line by taking the difference between the desired and actual performance values, back propagating those values through the neural system model agent 308 and using the control deltas as target values for the neural controller agent 306.

---

Page 6 of 26  
Serial No. 10/021,203  
Amendment and Response dated August 3, 2004  
Reply to Office Action of May 3, 2004  
IBM Docket ROC920010146US1  
WH&E IBM/201  
K:\bm201\Amendment and Response to 5-3-04 OA.wpd